

CLAIMS

What is claimed is:

1. A material stacker, comprising:  
a frame;  
a plurality of stacking arms arranged along the frame in complementary pairs;  
a first electrically-controlled positioner configured to position one or more of the stacking arms in a horizontal relationship with respect to the frame;  
a second electrically-controlled positioner configured to position one or more of the stacking arms in a vertical relationship with respect to the frame; and  
an electronic control system configured to control the operation of the stacker using the first and second electrically-controlled positioners.
2. A stacker according to claim 1, further comprising a hard-coupled mechanical system arranged between stacking arm pairs to generate complementary horizontal movement of the stacking arms.
3. A stacker according to claim 2, wherein the hard-coupled mechanical system is a rack and pinion system.
4. A stacker according to claim 2, wherein one horizontal positioner is configured to control the horizontal movement and positioning of all of the stacking arms.
5. A stacker according to claim 1, further comprising a plurality of horizontal positioners.
6. A stacker according to claim 1, wherein the electronic control system is configured to control the speed, position, and ramping of the stacker arms through the positioners.
7. A lumber stacker, comprising:  
a plurality of stacker arms configured to be operated to stack lumber into packages;  
and

a disengagement system configured to readily enable disengagement of extra stacker arms.

8. A stacker according to claim 7, wherein the disengagement system comprises a mechanical assembly for selectively engaging and disengaging a mechanical communication between the stacker arms to be operated and the extra stacker arms.

9. A stacker according to claim 8, wherein the mechanical assembly comprises a clutching mechanism.

10. An electronically-controlled material stacker, comprising:  
an electronically-controlled horizontal positioning device configured to control complementary horizontal movement of stacking arm pairs; and  
an electronic control system arranged in electrical communication with the horizontal positioning device and configured to control the speed, ramping, and positioning of the horizontal positioning device to load material into the stacker.

11. A stacker according to claim 10, further comprising an electronically-controlled vertical positioning device configured to control vertical positions of a plurality of stacking arms.

12. A stacker according to claim 10, wherein the horizontal positioning device controls horizontal movement of a plurality of stacking arms through a hard-coupled mechanical system.

13. A stacker according to claim 11, wherein the vertical positioning device controls vertical movement of each of the stacking arms.

14. A stacker according to claim 11, wherein the electronic control system comprises a PC or PLC device comprising software configured to control the speed, ramping, and positioning of the positioning devices based on a position of the stacker arms.

15. A method of stacking material in a stacking device, comprising:

electronically controlling the speed and positioning of a linear positioning device to control the horizontal movement of stacking arms arranged in complementary-operating stacking arm pairs; and

electronically controlling the speed and positioning of a linear positioning device to control the vertical movement of a stacking arm.

16. A method according to claim 15, wherein controlling horizontal movement of a pair of stacking arms comprises driving the pair of stacking arms in a complementary relationship to one another using a hard-coupled mechanical system.

17. A method according to claim 16, wherein the hard-coupled mechanical system comprises a rack and pinion system.

18. A method according to claim 15, wherein controlling the vertical movement of a stacking arm comprises using the linear positioning device to drive a vertical lift arm communicating with the stacking arm.

19. A method according to claim 15, further comprising automatically increasing and decreasing the speed of the stacking arms during the course of their travel to increase a stacking rate of the stacking device while reducing the risk of tossing the material to be stacked.

20. A method according to claim 15, further comprising electronically tracking the horizontal position of the stacking arm pairs during their course of forward and rearward travel, and adjusting a velocity and a vertical position of each of the stacking arms in relation to their position of travel by electronically profiling the motion of each stacking arm using a similar electronic pattern.